

Policy Reforms, Competitiveness and Prospects of Kenya's Manufacturing Industries: 1984-1997 and Comparisons with Uganda

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Abstract

This report is the Kenyan part of a study focusing on the competitiveness of manufacturing industries in Kenya and Uganda. Its principal objective is to examine whether, as a consequence of various policy reforms, the competitiveness and comparative advantage of Kenyan manufacturing industries have been enhanced since the mid-1980s. The study also compares a sample of industries in Kenya with a similar but smaller sample in Uganda, in order to predict how further liberalization and regional integration are likely to affect the production and trade patterns in the two countries. A third objective is to analyse the competitiveness of industries in terms of its sources, distinguishing real sources based on shadow prices and price distortions.

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Introduction

Kenya and Uganda are at a critical stage of their economic development. After several years of trade policy and other reforms, Kenya's Government predicts an important acceleration of industrial development with the result of becoming a 'newly industrialized country' by 2020. But industrial growth in recent years does not seem to warrant such a prediction. Uganda, on the other hand, has recently experienced rapid economic growth and industrialization, but its manufacturing sector remains small in comparison to that of Kenya, due to a long period of instability and de-industrialization. Both countries are engaged, together with Tanzania, in a process of regional integration, which is leading to free trade among them in the very near future. Industries in all three countries are also facing increased international competition due to past structural adjustment and an increasingly "globalized" world economy. International competitiveness is therefore a goal that industries must try to reach not only for further growth but also for survival. This does not mean that they can be expected to compete successfully under perfectly free trade. A certain level of protection against low-cost international competitors is likely to be maintained in the region. But it is not clear at this point what that level of protection should be.

The present study investigates the international competitiveness of manufacturing industries in Kenya and Uganda and attempts to derive conclusions on future trade flows and industrial growth in the two countries. It uses a method of analysis designed by Siggel & Cockburn¹ and applied previously in another EAGER project in Mali and Côte d'Ivoire², as well as with Indian data³. This method is the result of a marriage between incentive measurement of standard trade theory and social cost benefit analysis. It consists of the computation of competitiveness indicators and their decomposition according to the major sources of competitiveness. The analysis is carried out with Kenyan data of 1984 and 1997 and Ugandan data of 1997. The Kenyan component of the study compares the competitiveness of 42 firms in 16 industries in 1997 with that of the same or similar firms in 1984. It is important to see how industries have adjusted to the various policy changes over a period of 13 years. It also compares the present (1997) competitiveness with that experienced in eleven matching industries in Uganda.

The present report examines in the first section the Kenyan policy environment focusing on policies that have affected the manufacturing sector. In the second section, we explain the method of analysis, as well as the database and assumptions necessary in the analysis. The third section contains the sector-wide results of the analysis, starting with the situation in the mid-eighties, then focusing on the changes between 1984 and 1997, and comparing with industries in Uganda. In each section we examine the sources of competitiveness and comparative advantage, which is the specific contribution of our methodology. In the final section we draw conclusions and derive a number of policy recommendations.

1 The manufacturing sector and its policy environment

Since the mid-1980s Kenya has been under increasing pressure to strengthen its industrial competitiveness. This pressure is attributable to a number of factors including the on-going

¹ A more detailed exposition of the method is contained in Siggel & Cockburn (1995) and Cockburn & Siggel (1995).

² Cockburn, Siggel, Coulibaly and Vezina, 1999.

³ Siggel, 1998.

economic globalization, the country's entry into various regional integration arrangements that require opening of the economy to the regional partners, and the general liberalization of the economy to both domestic and external forces. In addition, the Government of Kenya (GoK) has declared its vision of becoming a newly industrialized country (NIC) by the year 2020. To achieve this goal, it is imperative to radically increase the country's competitiveness and to expand its export markets.

Kenya's industrialization process began at the start of this century under the British colonial rule. The pace of industrialization was quickened after independence in 1963, as the country embraced an import-substitution strategy that was then popular in a number of developing countries. Since then, a number of incentives have been used to encourage manufacturing activities in the country, including protective tariff and non-tariff barriers, tax exemptions and, later, special schemes such as export compensation, manufacturing under bond (MUB) and export processing zones (EPZ).

The import-substituting industrialization strategy encouraged the establishment of industrial enterprises, which were dependent on heavy protection through tariff and non-tariff measures. Pricing and other economic activities were directly controlled by the government. The result was the creation of an industrial structure with many inefficient and non-competitive industries. The failure of many of the country's industries to be export-oriented was partly due to their lack of competitiveness in the international markets. Other factors that contributed to this lack of competitiveness were the weakness of the country's infrastructure, failure to enjoy economies of scale, especially after the collapse of the East African Common Market in 1977, and the high cost of imported inputs (ADB, 1995:67). The export promotion schemes mentioned above were introduced to counter this development and to create export-oriented enterprises, to generate employment and to promote the transfer of technology.

1.1 Trends in industrial production

The inward-oriented strategy had served the country well in the first and second post-independence decade. From 1964 to 1973 manufacturing grew at an annual average rate of 9.1% (compared to 6.6% of GDP) and between 1974 and 1979 at 10% (GDP: 5.2%). The policies resulted in better incentives and a more favourable economic structure than in most other sub-Saharan (SSA) countries. The sector's share in GDP grew from 10% in the 1960s to 12% in the late 1970s and 13% in the mid-1980s. In the second decade the economy had experienced several major shocks, from the oil price in 1973 and 1979, a major drought in 1974/75, the coffee boom of 1976/77 and the collapse of the East African Community (EAC) in 1977. These and other factors led to an overall economic slowdown with average GDP growth of 4.8% in the 1980s and only 3% up to 1996. Since manufacturing growth had been fuelled mainly by demand growth (more than two thirds) and import substitution (slightly over one quarter), according to Sharpley and Lewis (1988), the slow-down affected the manufacturing sector not only by declining demand, but also by import substitution coming to a saturation point. The easy phase of import substitution in light manufacturing of consumer goods had come to an end, as in food, beverages, tobacco and textiles and clothing most of the demand was being satisfied by domestic production. Further import substitution, in intermediate and capital goods, was possible, but required heavy investments, new technologies and higher skills. But the 1980s did not provide the necessary demand growth or the enabling environment for such projects. Manufacturing exports had

contributed only about 5% of the sector's total growth, and the partial loss of the Ugandan and Tanzanian markets in 1977 meant a further decline of this potential source of growth. The realization of these constraints led the GOK to adopt the export promotion schemes mentioned earlier, but none of them was really successful in the circumstances. The sector remained essentially oriented towards the domestic market, with only a few industries producing for external and mainly regional markets.

Although the sector has always attracted more investments than its share in GDP, that share declined from 17% in 1970 to 14% in 1980 and 13% in 1992, from where it started to rise only in the mid-1990s. The manufacturing growth of the 1980s was not driven by investment, but by fuller use of the existing capacities, and excess capacities had been created, which is a well-known phenomenon under inward-oriented regimes. Another aspect of manufacturing growth also observed in Kenya was its low absorption of the labour force, which in view of strong population growth, aggravated the problem of unemployment. Before dealing with the labour market in more detail, let us first review Kenya's industrial policies and recent their changes.

1.2 Kenya's industrial policies

Since the country inherited, at independence, one of the strongest industrial bases in the region, the industrial development has been recognized as one of the key sectors of the economy for the whole of Kenya's post-independence period. This is well reflected in the official pronouncements on overall economic and industrial policy during the period. The policies that were pursued have largely reflected the dominant international viewpoint. Thus, the country's first development plan, 1966-70, laid emphasis on import-substitution as the strategy for the country's industrialization (Republic of Kenya, 1996). The strategy was to be implemented mainly through the protection of industries, using tariff and non-tariff barriers, exchange controls and import licensing. Other key elements of the country's industrial policy have been a liberal policy towards foreign investments, the promotion of labour-intensive technologies, greater focus on medium and large industries, and the pursuit of even geographical dispersal of industries, as well as Kenyanization (McCormick, 1998).

The government's policy statements of the early 1970s and 1980s started to emphasize the need to reduce protection to domestic industry in order to encourage efficiency and reduce the burden of industry on other sectors. Promotion of manufactured exports and encouragement of further import substitution featured as key policies for most of the period 1963 to 1985. The former policy was especially promoted through the introduction of the export compensation scheme in 1974, a measure intended to assist manufacturers with cash subsidies to help them offset the protective effects of tariffs on imported inputs and the cascading effects of domestic excise and sales taxes. Import substitution was especially promoted through raising of the level of scheduled tariffs and the use of import licensing as a key element of macroeconomic management and protection for domestic manufacturing industries. Higher levels of protection were given to foreign private firms and parastatal enterprises than to locally owned firms (Sharpley and Lewis, 1988). The nature and incidence of trade policies will be seen in more detail in the next section.

Macroeconomic policies also affected industries in several ways. First in importance is possibly economic stability, which is the basis for sound investment decisions. Fiscal and monetary

policies, together with trade and exchange rate policies were implemented to achieve high levels of employment and price stability. Price controls were also used extensively up to the mid-1980s as a key policy instrument. This, coupled with the extensive quantitative restrictions on imports, reduced the incentives for firms to keep their costs down, and virtually stifled competition from imports. It also discouraged domestic firms producing import substitutes from seeking lower-priced or higher-quality inputs in international markets, resulting in high average unit costs. Price controls also had the effect of making producers shift to the production of commodities whose prices were not controlled. These negative effects of the price control policy on the incentives of the local manufacturers were further exacerbated by exchange controls through import licensing.

In recognition of the burdens imposed on the economy by these policies, the government, in the Sessional Paper No. 1 of 1986, proposed an industrial strategy that was to be driven by the private sector relying more on a market-based incentive structure. The policy, among others, emphasized the need to reduce the importance of import licensing as a protective shield for local manufacturers and to gradually lower tariffs, in order to expose domestic firms to competition for greater efficiency.

In the 1989-93 National Development Plan, industrial policy continued to emphasize the need to create incentives necessary for the emergence of a successful manufacturing sector, one not based merely on import substitution. The industrial development vision projected in the plan talked of adopting a strategy that would lead to the establishment of iron & steel, tool & die, and a machinery industry, as well as a biotechnology and other high technology industries. Price liberalization, restructuring of the import and tariff regime and the adoption of a realistic exchange rate were seen as crucial for increasing Kenya's competitiveness in world markets.

The early 1990s saw the beginning of dramatic liberalization of the economy and an even stronger focus on industrialization. In 1997, the government produced a key document on industrial policy, the Sessional Paper No.2 of 1999 on the 'Industrial Transformation to the Year 2000'. The document highlighted some of the major constraints to industrial expansion and proposed a broad strategy for industrialization. The key elements of the strategy included the promotion of political and social stability, macroeconomic stability to build business confidence, more efficient and diversified primary production as a base for economic growth, increased investment in human resources and rehabilitation of the physical infrastructure. It also included reform and development of the financial markets, formulation of trade and investment policies to transform the economy into an outward-looking one, increased cooperation and dialogue between the government and the private sector to foster greater and genuine partnerships, and an increase of the proportion of resources allocated to technology development and management (Republic of Kenya, 1996).

1.3 Trade policy and its reforms

Trade policy is known to be the principal instrument affecting manufacturing industries and their incentive regime. As we have seen already, the strategy of import substitution entailed high and uneven tariff rates with frequent exemptions, quantitative restrictions on imports and import licensing. The liberalization of the trade regime from 1985 onwards had only weak effects in the first years, with frequent episodes of relapse, but it became more effective after 1991. The

average un-weighted tariff rate actually increased slightly from 40% in 1985 to 41.3% in 1989, but declined to 34% in 1992. The decline is even more visible for the import-weighted average tariff, which declined from 29.6% in 1988 to 20.4% in 1992. By 1994, the manufacturing sector enjoyed an average tariff of 28.5%, which hides, however the wide dispersion of rates. Although maximum rates have declined substantially in the manufacturing sector, most of the reduction in the level of protection has occurred largely due to the reduction in the production coverage of quantitative import controls (Swamy, 1994). For example, whereas quantitative controls (Schedule IIIC) covered most manufacturing in 1986, the coverage fell to 79% in 1988, 45% in 1990, and 28% in 1991.

The quantitative restrictions (QRs) and high tariffs combined to provide high levels of effective protection to the manufacturing sector and a strong anti-export bias. In order to capture the effect of QRs on prices, it is necessary to make quality-adjusted comparisons between the prices of domestic producers and the border prices of corresponding imports. The resulting implicit nominal rates of protection have been used in several studies of effective protection, most of which have shown that the level of effective protection exceeded substantially the level of nominal protection, due to the cascading nature of the tariff and due to exemptions from tariffs on the input side. Also, it has been shown that import liberalization has failed to reduce the effective rate of protection for Kenya's manufacturing sector, in spite of the decline in nominal rates (Sharpley and Lewis, 1990; Keyfitz and Wanjala, 1991; Wignaraja and Ikiara, 1996). Estimates of the ERP by the World Bank, however, indicate that the average rate for manufacturing declined from 107% in 1985 to 47.9% in 1990 and to 44.5% in 1992. Some sub-sector rates are shown in the following table.

Table 1: Effective rates of protection in Kenyan manufacturing: 1985, 1990 and 1992

	1985	1990	1992
Food preparations	111	51	44.1
Beverages	3	40.9	36.8
Textiles & garments	126	59.6	64.4
Text. raw mat.	n.a.	41.1	35.9
Garments	n.a.	77.1	99.7
Leather & footwear	80	43	40.5
Paper & wood prod.	6	47.3	42.1
Chemicals:	211	45.2	40.6
Rubber products	n.a.	47.1	45.2
Paints & detergents	n.a.	43.7	37.5
Non-metallic minerals	248	36.5	30.9
Metal products	312	46.9	40.4
Mean	107	47.9	44.5

Source: World Bank (1987) and World Bank/UNDP (1994)

The table shows that the effect of trade liberalization started having some impact on the manufacturing sector only in the 1990s. Not only did the average rates decline, but also, and more importantly, the dispersion of rates among the industries was significantly reduced. The description of the trade regime would be incomplete without regard of the exchange rate. In inward-oriented trade regimes high protection is often accompanied by an over-valued currency,

where the effect of over-valuation is the opposite to that of protection. Let us see then how the GoK managed the foreign exchange market.

1.4 The foreign exchange market and the exchange rate

Up to the time the East African Currency Board broke up, the shilling was nominally pegged to the British pound. After that, the peg was switched to the dollar and remained so up to 1974 when, following a series of devaluations precipitated by the oil crisis, the official peg was switched to the SDR. Between 1974 and 1981, the movement in the nominal exchange rate in relation to the US\$ was erratic and resulted in a depreciation of 14 percent. Further devaluations took place between 1980 and 1982, with the shilling depreciating by about 20% in real terms against the SDR. Towards the end of 1982 the exchange rate regime was changed to a crawling peg, which lasted until 1990, when a dual exchange rate system was adopted. That regime lasted only up to October 1993 when, after a series of devaluations, the official exchange rate was abolished. This led to the merging of the official exchange rate and market exchange rates. After an appreciation of 35% in 1994, the shilling depreciated slightly in 1995, which was more than offset by a similar appreciation in 1996. Since 1994, the government has continued to implement economic reforms in an attempt to rectify some of the major macroeconomic imbalances. The reforms included the abolition of exchange control regulations, abolition of import licensing, introduction of export retention schemes and the removal of price controls.

Most observers agree that the Kenya shilling was not much over-valued in the 1960s. However, restrictive trade policies were actively applied in the 1970s when the economy started to experience large macro-economic imbalances. Overall, the real exchange rate was fairly stable in the 1967-75 period, but it registered more instability in the period 1977-1982, when the shilling was subjected to a number of discretionary devaluations. Over the period 1983-91, during which the exchange rate was adjusted on a daily basis, the real exchange rate was relatively stable. Since 1991, the government has adopted a more market-based exchange rate regime, resulting in a massive depreciation in 1993, but which did not prevent renewed real appreciation in 1994-95. Several observers have agreed that by 1997, the end of our study period, the shilling was again somewhat over-valued (Ndung'u, 1997, Mwega & Ndung'u, 1998).

1.5 The labour market

Although labour's share in total manufacturing costs is a relatively small fraction, usually no more than 10-15%, labour plays a much more important role as a potential source of comparative advantage. First, among all sources of competitiveness, labour is usually expected to be a prime source, but in reality often does not play this role, due to its low productivity. Second, the problem of a rapidly growing labour force, combined with constraints of employment creation in other sectors, places a huge burden of employment creation on manufacturers. Firms are expected to employ large numbers of workers, but they can do so only if labour remains cheap, in order to stay competitive. We shall examine now how government policy in Kenya has influenced manufacturing employment and the cost of labour.

The labour force in Kenya, estimated to consist of 14 million in 1998, is rapidly expanding at a rate of close to half a million new entrants per year, due to continued high population growth and

an age structure of more than two thirds being less than 40 years old (Tostensen, 1991, p.298). The levels of unemployment and underemployment have remained high for most of the last two decades. Open unemployment is estimated to be about 25%, and underemployment is around 20% (Republic of Kenya, 1996). Retrenchment and poor performance of the economy have aggravated the employment problem in the country in the 1990s affecting workers in both, the private and public sectors.

Manufacturing employment represents a proportion of 13.1% of total wage employment, and about 25% of private sector employment. Given the sector's higher-than-average wages, the proportion of wage earnings of total employment earnings is over 30%. In the 1990s, manufacturing employment grew at over 2% yearly, but its proportion of private sector employment decreased from 26% in 1991 to 23.6% in 1995, while its wage bill increased from 30.1% of total employment earnings to 36.7%, in the same period. These numbers reflect two tendencies, staff retrenchment as response to structural adjustment, and upward wage pressure supported by increasing labour productivity.

Generally, the Kenyan labour market has been characterized by relatively low wages, especially among unskilled and semi-skilled workers. Several factors have contributed to this situation. First, the government purposely pursued a policy of low wages aimed at making the country attractive to foreign investors. Second, the trade union movement in the country has been largely ineffective as an instrument for improving real wages, partly because of the government's close control over the affairs of trade unions, and partly because of high levels of unemployment, which made strikes risky for workers. Third, agriculture tended to subsidize industrial workers through remittances, to that workers were not wholly dependent on their industrial wages (Tostensen, 1991, p. 291).

For most of the last three decades, Kenya has had a highly regulated labour market. The wage guidelines, which were in force since the 1970s, restricted wage awards that trade unions could negotiate with employers. The wage increase allowed by the wage guidelines was restricted below the rise in the cost of living index. As a result of these guidelines, the real wages declined substantially, so that the level of real wages in the early 1990s was below that in the mid-1980s. Through the mechanisms of minimum wages and its wage setting in the large public sector, the government had heavy influence on wage determination in the whole economy.

In the early 1990s, considerable liberalization of the labour market took place, largely as a result of the structural adjustment programme the country was implementing. Some of the reforms that affected the labour market included the relaxation of wage guidelines, which allowed trade unions to negotiate for better wages with employer organizations largely based on labour productivity and performance of the enterprises. The redundancy laws, which made it difficult to declare workers redundant, were also amended, allowing employers now to declare workers redundant without having to obtain approval from the Ministry of Labour and Manpower Development. On the whole, these policy reforms are expected to assist the manufacturing industries in gaining competitiveness.

1.6 The capital market

Capital costs are, as the present study shows, a decisive factor for competitiveness. In particular, the distortion of the market price, relative to the shadow price, of capital can either cause additional costs or can act as a subsidy. In Kenya, in the late 1990s, the distortion was both substantive and cost-increasing. It is important, therefore to examine what caused the cost of capital to be exceedingly high.

Kenya has well-established financial and capital markets relative to the average sub-Saharan country. By 1996, the country had about 40 commercial banks, non-bank financial institutions, 7 development finance companies, 5 representative offices of foreign banks, 40 insurance companies, about 1500 co-operative savings and credit unions and one of the oldest stock markets in Africa. The banking sector has been dominated by two multinational, and two government-owned, banks. The two government-owned banks have been gradually selling an increasing proportion of their shares to the public, although the government influence and presence in the two institutions are still strongly felt.

The financial and capital markets have undergone considerable reforms in the 1990s, including liberalization of interest rates and foreign exchange markets. With regard to the Nairobi Stock Exchange, legislative measures have been taken to widen its base, to raise the level of competition and to facilitate greater inflow of external resources and investments in various sectors of the economy. A Capital Markets Authority was established in 1989 to guide the growth of the stock exchange market.

In spite of the relative depth that the financial sector has reached, it suffered a major banking crisis in 1985-86, in which a number of financial institutions collapsed, with considerable adverse effects on the locally owned and managed banking institutions. In 1991, the two quasi-government institutions have suffered a crisis of failing confidence due to their heavy unsecured loans. In addition, the government has financed deficits by borrowing from the banks. Together, these factors can be taken to explain why lending rates have remained above 30% until the later part of 1998 and 1999, when most of the banks started to reduce their lending rates. It is worthwhile noting also that, with a relatively stable and high nominal interest rate of above 30% and strongly fluctuating inflation rates of 28.8% in 1994, 1.6% in 1995 and 9.1% in 1996, the real interest rate also fluctuated strongly between 2% and over 30%.

Another factor limiting access to credit facilities has been the high collateral requirement. Firms are often required to surrender to the bank collateral with more than double the value of the loan being sought. In the case of the small-scale firms, they often do not have the required collateral, which in most cases is a land title deed.

Due to the problems associated with accessing bank credit facilities, a large proportion of the Kenyan firms rely more on self-financing in terms of retained earnings and supplier credit facilities, which attract low interest rates and do not require the type of collateral demanded by the banking institutions. According to a recent study, more than a third of the firms studied relied heavily on retained earnings, the tune of almost 80% of their financing (RPED, 1996, p. 109). A study, sponsored by the Kenya Association of Manufacturers (KAM, 1992), examined the

financing needs of manufacturing firms and found, in addition to the points made above, that the currency depreciation, the external debt burden and lack of a conducive environment to attract new investment, were also factors responsible for the high cost of borrowing. The reforms carried out, especially in the last six years, have removed some of the above constraints, notably the shortage of foreign exchange and a host of government controls that were a disincentive to investors. But most of the other constraints continue to be a source of concern for the Kenyan business community.

1.7 Fiscal policy and public expenditure

Inability to control government expenditures has been one of the major weaknesses in Kenya's fiscal management in the last decade. One writer on Kenya's fiscal policy commented that "...the heart of Kenya's fiscal problem is its inability to control expenditures, not its inability to generate sufficient revenues" (Swamy, 1994). Although the favourable policy environment prevailing in the first decade of the country's independence has been credited for having resulted in one of the dynamic economies in sub-Saharan Africa in the 1960s and early 1970s, the fiscal policy pursued during the period resulted in the rapid expansion of the public sector. Kenyanization of industry and the desire to industrialize rapidly created a large public sector, which spanned traditional activities such as utilities and transport, but also non-traditional areas such as distribution and manufacturing. Consequently, the budget deficit grew dramatically over the period, financed in part by domestic and in part by external borrowing. Yet, the country followed relatively orthodox fiscal policies until the late 1970s. In the 1980s, however the fiscal responsibility and prudent monetary policy of the 60s and 70s was lost. Budgetary policy started to rely heavily on borrowing from commercial sources abroad, leading to critical levels of external debt, as well as from the domestic banking system. By 1979/80, the public expenditure-to-GDP ratio had increased from its 1973/74 level of 24% to more than 31%. The budget deficit increased from 3-4% in the early 1970s to around 10% by 1981. The inability to control expenditures was due in part to the structure and composition of public expenditures and partly due to lack of discipline in expenditure allocation and execution. The main consequence of this failure for the industrial sector and its competitiveness can be seen as twofold: shortage of foreign exchange and its rationing through the licensing system, and the crowding out of private investment due to the rising cost of credit. Thus, whereas the overall macroeconomic policy did not have much direct effects on the manufacturing sector, their effects came indirectly through their impact on the balance of payments, the direction of trade policy and the cost of capital.

1.8 Infrastructure

The final point of this review of the policy environment facing the industrial sector is one that is difficult to measure, but has created a lot of aggravation in the business community. Several recent studies, including the present one, show that inadequate and poorly maintained infrastructure has emerged as a major impediment to Kenya's industrial growth and other economic activities. A study, which covered more than 200 industrial enterprises in the country's main industrial towns, observes: "The poor state of infrastructure continues to be a serious impediment to business activity and manufacturing" (RPED, 1996, p.161). According to the firms interviewed during the study, the state of the country's infrastructure especially with regard to electricity, water, freight transport, port handling facilities, telephones, waste disposal and security

had deteriorated substantially, compared with a few years earlier.

One of the consequences of the governments failure to effectively provide essential infrastructure is that a large proportion of the enterprises have been forced to engage in costly self-provision of various facilities, especially own power generators, private telephone systems, etc. Out of the 219 enterprises in the RPED study, 26% had their own generators, 20% had invested in own water supplies, such as wells or cisterns, 21% were providing own waste disposal, while almost 60% had increased expenses in security (RPED, 1996). This self-provision of essential facilities had raised the firms' operational costs, thereby reducing their overall competitiveness.

A number of measures have been taken recently to improve the country's state of infrastructure. First, multilateral donor institutions like the World Bank have been approached to provide loan facilities to rehabilitate some of the dilapidated infrastructure. One of the ongoing activities in this regard is the World Bank funded urban roads project involving repair of roads in 26 towns in the country. Second, the government is restructuring parastatals and privatizing some of their activities, in areas such as power generation, transport and communication, railways and post and telecommunication. These efforts are expected to improve the country's state of infrastructure significantly in the coming years, but as we note in the present study, based on interviews with 42 manufacturing firms, much damage has been done to the sector's competitiveness and prospects for industrial growth.

2 The method of analysis and data base

The concept of competitiveness is frequently used by economists, politicians and business leaders, but there is little agreement about its precise meaning, and even less about the methods of measuring it. While politicians and some economists tend to use the term in an economy-wide sense, we only use the microeconomic version of the concept, and more particularly the one of cost competitiveness. At the enterprise or industry level, producers are deemed to be competitive if their unit costs of production are inferior or equal to those of their competitors. This can be the case in the domestic as well as in international markets. International competitiveness is of particular importance when markets are open or being opened to international competition, such as is the case under trade liberalization. For a survey of the literature on competitiveness the reader is referred to a recent symposium on 'International Competitiveness' (1996) and a survey paper (Siggel, 1997). Competitiveness in Kenya has been analysed in several studies, in particular (RPED, 1993 to 1995; KEDS, 1993 and 1994; Biggs & Raturi, 1997; and Wignaraja & Ikiara, 1996).

2.1 An indicator of competitiveness and its sources

The indicator of competitiveness used in the present study is a unit cost ratio (UC), defined as total cost (TC) divided by the value of output (VO), which in turn equals output quantity times the ex-factory price. For domestic sales, the ex-factory price is the domestic market price (Pd), which is typically higher than the international price of a similar imported product by a margin equal to the nominal rate of protection. For export sales, on the other hand, the ex-factory price is equal to the international (fob) price (Pw).

This particular definition of the unit cost ratio serves a double purpose. First, it helps to overcome the

differences in product mix and quality that make inter-firm comparisons always problematic. We assume that the output price is usually proportionate to the quality attributes of products. Second, it makes the unit cost indicator independent of the data of an international competitor, whose cost we would otherwise need for comparison. We assume, therefore, that the international price (P_w) corresponds to the unit cost of a typical international best-practice producer. The fact that P_w is measured as the border price (cif) means that the benchmark for international comparison includes the transport cost to the border and therefore a margin of natural (geographic) protection. Our criterion for international competitiveness or export competitive advantage is then

$$(1) \quad UC_x = TC/(Q P_w) \leq 1$$

meaning that a firm is deemed to be competitive if its cost per unit of output is less or equal to the free-trade price of an equivalent import. This concept of cost competitiveness is multilateral, as opposed to a bilateral firm-to-firm or country-to-country comparison, but it allows bilateral comparison as well.

In addition to the notion of international competitiveness, we are also interested in domestic competitiveness, which means a cost advantage under protection. In this case the denominator of unit cost is the output value at domestic prices ($VO_d = Q P_d$), so that the criterion of domestic competitive advantage becomes

$$(2) \quad UC_d = TC/(Q P_d) \leq 1.$$

For those firms that export part of their output, P_d of the exported output equals P_w . This measure of competitiveness reflects the profitability of the firm. Since total cost includes the opportunity cost of capital, it exceeds one if the rate of return is lower than the interest rate, and it is less than one if the rate of return is higher. The most important distinction, however, and the hallmark of our method of analysis, is the one between competitiveness and **comparative advantage**. While competitiveness is understood as a cost advantage based on market prices including various price distortions, subsidies and penalties, comparative advantage corresponds to a cost advantage at equilibrium prices.⁴ In order to measure comparative advantage we have to replace all prices, in output as well as all inputs, by shadow prices. A firm or industry has then comparative advantage if

$$(3) \quad UC_s = TC_s/(Q P_s) \leq 1,$$

where TC_s is total cost in shadow prices and P_s is the shadow price of output. The latter is usually equal to the international price (P_w), but adjusted for any distortion of the exchange rate. TC_s is the sum of all cost components adjusted for all price distortions and subsidies.

It is now evident that our concept of competitiveness differs from the one of comparative advantage only by including the sum of all price distortions. When UC_d is smaller than UC_s , the price distortions act as subsidies; when UC_d exceeds UC_s they act as penalties. Since price distortions exist on the input and output sides, appearing in the numerator and denominator, they have the opposite effect on the input and output sides. A tariff on output lowers unit costs, whereas a tariff on tradable inputs raises it. This shows that in the protected domestic market a producer is more competitive than under free trade,

⁴ This proposition is demonstrated in Siggel (1993) and originally established in Dornbusch, Fisher, Samuelson (1979)

as production tends to be more profitable under protection. But comparative advantage, which is the real core of competitiveness, is not affected by the price distortions. However, under protection and other distortions, input coefficients may be affected as well. In other words, cost-lowering price distortions may lead to lower efficiency.

Finally, total cost is broken down into four components, tradable inputs, non-tradable inputs, labour cost and capital cost, and in each component the distortions are calculated and deducted from the costs at market-prices according to the following scheme:

(4)	VITs/VOs	(Shadow unit cost of tradable inputs)
	+VINs/VOs	(Shadow unit cost of non-tradable inputs)
	+LCs/VOs	(Shadow unit cost of labour inputs)
	+KCs/VOs	(Shadow unit cost of capital inputs)
	<hr/>	
	=TCs/VOs=UCs	(Total unit cost at shadow prices)
	+dpe	(Exchange rate distortion of output)
	+dpj	(Tradable input price distortion)
	+dpje	(Exchange rate distortion of tradable inputs)
	+dw	(Wage rate distortion)
	+dpk	(Capital goods price distortion)
	+dr	(Interest rate distortion)
	+ds	(Direct subsidy, negative)
	<hr/>	
	=TCd/VOx=UCx	(Total cost per unit of output at international prices)
	+dpp	(Output price distortion)
	<hr/>	
	=TCd/VOd=UCd	(Total unit cost at domestic prices)

In other words, total unit cost in shadow prices (indicator of comparative advantage) plus all cost distortions adds up to unit cost per output value at free-trade prices (indicator of export competitiveness), plus the output price distortion adds up to unit cost in domestic prices (indicator of domestic competitiveness). This accounting framework serves us to identify, with some limitations, the sources of competitiveness. The distortions are all expressed as proportions of unit cost so that the highest proportions indicate the strongest influence on unit costs. For the factors of production, on the other hand, this procedure is not applicable and is replaced by a statistical approach, as explained in section 3. While the cost components of tradable and non-tradable inputs are straightforward, the measurement of the distortions deserves special attention. Besides the distortion categories listed above, we also distinguish sub-categories such as energy cost distortions as part of the tradables, and transport and communications distortions as part of the non-tradables.

2.2 The measurement of distortions

In this study we are dealing with several kinds of distortions. The value of output is affected by the exchange rate distortion and the nominal rate of protection, which, in the absence of quantitative restrictions, is normally equal to the tariff. Price margins stemming from monopoly power are unlikely to be substantial in a trade regime regulated only by the tariff. On the cost or input side, there is a

number of distortions, in addition to that of input tariffs and the exchange rate, that need to be discussed, such as interest rate and wage distortions, energy distortions, and transport and communications distortions. The common characteristics of these distortions are that they are either directly policy-induced or they result from a regime that is, in turn, linked to government intervention. Energy, transport and communication fall into the latter category since the distortion results from the activities of state-owned utilities, if not from government spending and taxation directly.

2.21 Output price distortions

The domestic output price is assumed to depend on international prices of equivalent imports, tariff and non-tariff restrictions, and the exchange rate. While import restrictions are considered as distortions, the exchange rate may give rise to a distortion when it is misaligned. The total of all import restrictions is best measured by the implicit nominal rate of protection (NRP), which is the difference between the ex-factory price and the cif border or free-trade price of comparable imports, expressed as a proportion of the border price. In order to capture the output price distortion adequately, we have attempted to compare the prices of products with those of comparable imports. In praxis, this is a difficult exercise and requires the assistance of the producing firm, which knows best the exact composition of total output as well as the quality characteristics of the products. Unfortunately, in this attempt we were not fully successful as in various industries the estimated NRP did not seem to be reliable. Most often the quality differences between domestic products and imports were not sufficiently taken into account. At the end, therefore, we had to go back to the tariff, although in the data of 1984 the NRPs are based on price comparisons. In 1997, however, quantitative restrictions were no longer of importance, so that the tariff seemed to capture more realistically and more consistently the existing price distortions. The only cases, where the tariff is an insufficient measure of protection, are industries, where either smuggling erodes the protective effect of the tariff, or where dumping brings the import and domestic prices down to a level that is, possibly, below the true international price. In industries where smuggling is known to be important, we have made adjustments to the tariff based on price comparisons that seemed to be reliable. Several firms in our sample have argued that there is dumping, but the term ‘dumping’ is not always used in its technically correct sense. So we are not totally sure about the correctness of dumping charges. In cases like textiles, where a lot of imports are allegedly entering the domestic market without duties and with values that are below the free-trade prices of comparable product that are officially imported, the question of dumping should be investigated more thoroughly.

2.22 Tradable input price distortions

Since the number of material inputs is usually large, it is difficult to deflate them one by one for distortions caused by tariffs and other policy-induced measures. Rather than estimating the price distortions of individual intermediate inputs we have divided the total duty paid on imported inputs by their net value and taken this average rate as the distortion factor. Not all tradable inputs are imported, however. Many are purchased locally, in which case the users do not pay duties, nor do they know the implicit tariff. For these inputs we have taken the tariff rate as NRP if the nature of the input was known, or treated them as nearly non-distorted by applying only a small distortion factor reflecting their distorted transport cost and an average tariff rate of 5%.

2.23 Exchange rate misalignment

Currency misalignment is difficult to argue and to measure when the exchange rate is flexible, as it has been the case in Kenya in recent years. It is known, nevertheless, that central banks can influence the exchange rate by various kinds of intervention that are sometimes referred to as “leaning towards a higher or lower rate”, depending on the nature of interventions. It can also be diverted from its purchasing power parity value by capital movements or strong fluctuations in the terms of trade. In Kenya, although the rate is market-determined, industry officials have argued that the going rate overstated the value of the Kenyan shilling by an undefined margin. In particular, firms interested in exports argued that they felt penalized by the going exchange rate. We have examined this argument critically by using the purchasing power parity approach, and data on prices in Kenya and the OECD, and concluded that in 1997 the shilling was overvalued by about 10%. This rate is consistent with the studies by Elbadawi (1998) and Mwega & Ndung’u (1998).

The effect of this margin of over-valuation on our unit cost ratios is twofold. On the output side, it raises the shadow value of output above its value at international free-trade prices, and thereby lowers the unit cost ratio UCs. In other words, if the penalty of over-valuation did not exist, comparative advantage would be enhanced and comparative disadvantage diminished. On the input side, the opposite effect occurs for tradable inputs. In the result sections 3 and 4, the reported exchange rate distortion is the net effect on unit costs.

2.24 Energy costs

Utilities, consisting of electricity and water, have been treated, together with fuel, as tradables under the heading of energy costs, although at least water has the characteristics of a non-tradable service. Two kinds of distortions can be distinguished, price distortions and distortions in the quality of the service. For electricity and water, firms were asked to state not only the total expenditure and price per unit, but also to estimate by how much their costs exceed the “normal” level. Abnormal costs have often been mentioned in the questionnaires and in interviews, and they usually take the form of service interruption forcing the firms to either rely on own generators or pumps in case of blackout, or to shut down the production process. For some industries the irregular (interrupted) supply of electricity and water are a major cost factor impinging on their competitiveness. The average excess charge across all industries was in the order of 20% of the electricity and water bills. This may under-state the actual excess cost in some industries where shutdowns are especially costly.

2.25 Non-tradables

In the category of non-tradables the study distinguishes six kinds of services purchased by firms: repair, subcontracts, rents, transport, communication and other services. In the categories of transport and communication services major distortions were reported by the firms, who were asked to estimate the excess cost relative to normal operation. For transport services the excess cost is generally attributed to the bad state of the roads, as well as to the unreliability of the rail services. For communications it was frequently reported that firms subscribe to multiple telephone lines in order to have one or two working. Frequently firms also use cellular telephones in order to secure services that are not available from the public telephone system for which they, nevertheless, pay. In these two categories the individual firms' distortions vary according to the respondents' records and perceptions. The average cost distortion reported is 18% in transport and 19% in communications. All other categories of non-

tradables are assumed to be free from major distortions.

2.26 Labour cost distortion

The wage and salary component in total cost is generally below 15% of the total, due to the relatively low wages of unskilled workers, and in spite of the high cost of managers, especially expatriate ones. For all skilled occupations we make the simplifying assumption that the paid wages or salaries reflect the social opportunity cost of these services. For unskilled labour, on the other hand, we discount the paid wages by 20%, due to the severity of unemployment in this category, which includes casual (temporary) workers. This procedure is based on estimates of informal sector wages as well as the marginal product in agriculture. The resulting distortion component of labour payments is on average 0.3% and always under 3% of total costs.

2.27 Capital cost distortion

The cost of capital is measured by four components. First, the financial social opportunity cost is taken to equal the shadow interest rate applied to the total value of fixed and non-fixed assets at purchase prices. The shadow interest rate is computed as the mean of two estimates. Both are based on the assumption of strong international mobility of capital. The first is the international rate LIBOR (6.1% in 1997)⁵, augmented by an inflation differential between Kenya and the OECD average of 10%⁶, resulting in 16.1%. This approach has been criticised as being unrealistic.⁷ One can indeed argue that the shadow interest rate should include a margin accounting for the underdeveloped state of the financial sector and low savings, implying costs and a risk factor that exceed those of high-income countries. Unfortunately, we were unable to find data measuring these factors. An alternative approach, based on the international interest parity condition, is to add to the LIBOR the expected rate of depreciation of the Kenya shilling. Using the actual exchange rate of 1998 as the expected one, we obtain an expected rate of depreciation of 2.9% and a shadow interest rate of 9%. We consider the rates of 9% and 16% as lower and upper bound (used in sensitivity analysis) and adopt the median rate of 14% as the shadow rate for our computations of the shadow cost of capital.

In contrast, the market opportunity cost of capital is equal to the capital stock times a market interest rate, which is taken to equal the average lending rate of 30%, based on IMF statistics (IFS, 1999). The difference between these two interest rates constitutes the main capital cost distortion and is the second component. The third component is the annual depreciation as reported by the firms; it is treated as undistorted for simplicity. The fourth component is a capital price distortion, due to the payment of import duties on imported capital goods. Only a few firms have reported this distortion, and even where reported, it represents a negligible proportion of total costs. We also do not attach much importance to this distortion, because we focus on present policy distortions. Duties on capital goods represent a policy distortion of the past, i.e. of the time when major investments were made.

2.3 Data sources and coverage

The study is based on three data sets and additional information from various sources. The first set

⁵ IMF, IFS Yearbook, 1999, LIBOR on one-year US\$ deposits (p.106).

⁶ Based on consumer price indices of Kenya (12%) and industrial countries (2%), IFS Yearbook, 1999.

⁷ Comments by Mr. Tumusiime Mutebile, Secretary of the Treasury, Government of Uganda, October 1999.

consists of the firm-specific data of 1984, which were collected by two American consultants for a study of protection and efficiency commissioned by the Government of Kenya (Jansen & Selhorst, 1985). The second set consists of 1997 data from Kenyan firms, most of which are also members of the 1984 sample. The third set consists of 1997 data from a smaller sample of Ugandan firms, which are matched, as far as possible with the Kenyan sample of 1997. The latter two sets were collected by the members of the present project team, during the year of 1998 and up to July of 1999.

2.31 The 1984 data

This data bank covers 78 firms in all major manufacturing industries and provides information on all costs and revenues. It also uses shadow prices, some of which were altered, however, for the present study when the consultants' assumptions were difficult to justify. The product and firm-specific nominal rates of protection of outputs and tradable inputs are all adopted from this data bank. New estimates are used here of the equilibrium exchange rate, the opportunity and social opportunity cost of capital, of the shadow wage of unskilled labour and the treatment of non-tradable inputs was also adjusted.

The opportunity cost of capital at market prices was taken to equal the average Kenyan lending rate of 14.4% (cf. IFS, line 60p). The shadow interest rate of 16.6% is based on the 1984 LIBOR of 11.8% plus an expected inflation differential of 4.8% estimated by comparing Kenya's and the OECD's consumer price index during the 1983-84 period. The shadow cost of unskilled labour is estimated as 20% below the actually paid wages. This rate is based on the observation of substantial urban unemployment and estimates of the remuneration of unskilled workers in the informal sector. The potential misalignment of the Kenyan shilling (KSh.) was estimated to have been zero in 1984. This is consistent with computations of Elbadawi (1998) and Mwega & Ndung'u (1998). The shadow prices of all tradable products and inputs are therefore equal to the world prices in KSh. at the market exchange rate.

2.32 The data of 1997

The sample of firms was to match the earlier sample of 1984, but it was expected to be smaller, due to budget constraints. 33 of the original 78 firms have supplied data, and nine new firms were added that had a similar output mix as the corresponding ones in the 1984 sample. A questionnaire and interviews were used to obtain the detailed cost and revenue data required for the computation of unit cost ratios. The firms were also asked to name what they saw as the main obstacles to competing successfully in the domestic and international markets. Furthermore, they were asked for an evaluation of excess costs of energy, water supply, transport and communication, i.e. costs that may exceed what they would consider as normal, i.e. under normal conditions of operation.

The firm-level data are supplemented by tariff data for industries where the price comparisons remained unsatisfactory, and also by interest rates and information on the exchange rate. The average lending rate was taken from IMF data (IFS, various years) as 30 percent. The shadow rate of interest and the shadow exchange rate were computed in the way described earlier.

The third data set of 21 Ugandan firms pertains also to 1997, although a few firms supplied data of

1998. The firms were selected to match the sample of industries in Kenya. As to the distortion analysis in Uganda, the computations needed to be adjusted for the border price differential between cif Mombasa and cif Ugandan border (Malaba), which corresponds to the transport cost through Kenya and is quite substantial for some products. The adjustment is described in detail in the Uganda component of this study (Siggel, Ssemogerere, 1999). The interest rates and exchange rates (market and shadow) were estimated in the same fashion as for Kenya; the average lending rate in Uganda was 21.5% and the shadow interest rate was determined as 16%. The Uganda shilling was found to be over-valued by 20% in 1997.

2.33 Coverage

The number of firms in our sample (42) is small in comparison with the total number of firms in the manufacturing sector, even the large ones with more than 50 employees, which the Central Bureau of Statistics estimates as about 630 in 1996 (CBS, Statistical Abstract, 1996, p.146). Since most of the firms in our sample are the largest in each industry, the coverage is substantially higher than the firm number suggests. Covering 16 out of 24 industries (defined at the 3-and 4-digit level of ISIC), we think of the sample as modestly representative of the manufacturing sector. The sample of 78 firms in 1984 was considered representative of the sector by the Ministry of Planning.

3 Sector-wide results of the data analysis

Since we are combining three different data sets in the analysis, a word of guidance for the presentation of results is appropriate. We first examine the situation in the mid-1980s based on the data set of 78 firms, in order to use to a maximum the available data. Then, in section 3.2, we use the new data set of 1997, which is a sub-sample of 42 firms of the earlier set, to analyze the changes in competitiveness and comparative advantage between 1984 and 1997. In section 3.3 we compare Kenyan with Ugandan industries using the third data set based on 21 firms in Uganda. The whole analysis in section 3 takes a general view of the manufacturing sector, without focusing on specific industries. More specific industry details are revealed only in the full-length report of the project (Siggel, Ikiara, Nganda, 1999, chapter. 4).

3.1 Competitiveness and comparative advantage in the mid-1980s

Based on the data provided by 78 firms, as well as the assumptions and shadow prices discussed above, the average shadow unit cost (UCs) was computed as 1.166, meaning that total shadow costs exceeded the respective international prices by 16.6%. To the extent that the sample is representative of the sector, this is interpreted as **absence of comparative advantage** for manufacturing as a whole. When the firm data are aggregated into 24 industries, only five of them have UCs smaller than one, as shown in Table 3.1. They are, starting with lowest UCs (i.e. strongest comparative advantage) plastic goods (0.73), beverages & spirits (0.92), miscellaneous food products (0.93), footwear & leather (0.93) and petrochemicals and rubber (0.97). In five other industries (grain mills, fruit & vegetable canning, wood products, garment industry and meat & dairy products) the UCs is less than 5% above unity, which means that they may be able to realise comparative advantage with a modest amount of adjustment and cost cutting. All three unit cost ratios are shown in Table 3.1.

Table 2: Competitiveness (UCd and UCx) and comparative advantage (UCs)

in Kenya's manufacturing industries in 1984

ISIC	Industry	UCd	Ucx	UCs
3111/12	Meat & dairy	1.251	1.051	1.039
3113/15	Fruit & veg. procesg.	1.012	1.066	1.012
3116/17	Grain mills & bakeries	1.046	1.025	1.015
3118/19	Sugar & confectionery	1.421	1.842	1.450
3121/22	Miscell. foods	0.857	0.917	0.927
3131-34	Beverages & spirits	0.923	1.001	0.916
3140	Tobacco products	1.213	1.302	1.249
3110	Cotton ginning	1.131	1.300	1.306
3111	Spinning, weavg.& fin.	1.157	1.670	1.370
3212/13	Textile products	1.214	1.281	1.167
3219/20	Garments	1.098	1.600	1.033
3231-40	Footwear & leather	0.738	0.980	0.934
3311-20	Wood products	1.152	1.145	1.013
3411-20	Paper products	1.614	1.429	1.244
3511-14	Industrial chemicals	1.203	1.192	1.065
3521	Paints	1.021	1.491	1.248
3522	Pharmaceuticals	1.018	1.145	1.101
3529/50	Petrochem. & rubber	0.848	1.110	0.969
3560	Plastics	0.705	0.867	0.730
3620-99	Non-met. minerals	1.175	1.337	1.575
3700	Basic metals	1.319	1.364	1.198
3811-19	Metal products	1.279	1.547	1.326
3843/44	Transport equipment	1.165	1.675	1.366
3900	Miscell. manufactures	0.980	1.374	1.232
311-390	Average	1.125	1.252	1.166

As to the **sources of comparative advantage**, it is not possible to attribute low (high) shadow unit cost to a low (high) level of any of the four cost components, tradable and non-tradable inputs, labour and capital. A labour-intensive technique can save capital, and high intermediate input costs may reflect a technique that uses highly transformed inputs as opposed to raw materials. Since our method of analysis excludes the analysis of a production function, the substitution possibilities between different factors are not considered. We can examine the question, however, whether one or the other cost component, tends to be particularly high or low whenever unit costs are low. We interpret a tendency of a factor to be heavily used whenever total costs are low, as evidence of this factor being a source of comparative advantage. Heavy use is taken to mean that the respective input coefficient is higher than average, i.e. the trend line of input coefficients over UCs has a positive intercept.

For the four principal cost components linear trend lines have been estimated against UCs with the following results:

$$\begin{array}{llll}
 \text{capital costs:} & \text{KCs} = -0.31 + 0.49 \text{ UCs} & R^2 = 0.59 \\
 \text{labour costs:} & \text{LCs} = 0.04 + 0.07 \text{ UCs} & R^2 = 0.12 \\
 \text{tradable inputs:} & \text{VITs} = 0.21 + 0.34 \text{ UCs} & R^2 = 0.29 \\
 \text{non-tradable inputs:} & \text{VINs} = 0.06 + 0.10 \text{ UCs} & R^2 = 0.10
 \end{array}$$

where KCs, LCs, VITs and VINs are unit cost ratios of the respective cost components at shadow prices, as defined earlier. The trend lines of all four factors are shown in Figure 1. It appears from these regressions that capital cost is most strongly correlated with UCs. Its negative intercept suggests that low unit costs tend to be accompanied by lower than average capital costs and vice versa. In other words firms tend to achieve comparative advantage most often when they use the least capital. All other components tend to be higher than average whenever UCs is low. Obviously, all four linear functions add up vertically to the 45°-line, but the intermediate input and labour cost components are less strongly correlated with UCs. The size of the cost coefficients is of course a reflection of both the structure of transformation and the efficiency of factor use. We cannot separate these aspects unless we had numerous firm observations in a single industry with the same structure of transformation. But one can nevertheless infer that highly capital-intensive industries tend to be less likely candidates for comparative advantage than labour- and input-intensive ones.

Turning now to **domestic competitiveness**, the average unit cost ratio at domestic market prices (UCd) of the whole sample is 1.125, smaller than average UCs = 1.166. This means that, on average the distortions sum up to an implicit subsidy, thereby lowering unit costs by about 4%. In ten out of 24 industries the distortions raised the unit costs, so that their profitability at market prices was lower than that at shadow prices. In fourteen industries UCd was lower than UCs, i.e. domestic competitiveness exceeded comparative advantage. It follows therefore that in the majority of industries (14/24) further liberalization was likely to reduce competitiveness in the short run. In the longer run, they were expected, however, to become more competitive in real terms, by firms cutting costs or exiting the industry.

Finally, **export competitiveness**, as measured by UCx, indicates in column 3 of Table 3.1 that only four out of 24 industries had unit costs inferior to the free-trade value of their output. They are plastics, miscellaneous foods, footwear and beverages/spirits. All of them had also comparative advantage. Interestingly, only one of them (misc. food) exported a significant proportion of output. On the other hand, the three important exporting industries (meat & dairy, cement and fruit & vegetable canning) were not export competitive, according to our data. This observation can be explained by the presence of various distortions such as still existing price controls at that time, export subsidies and the fact that exporting to neighbour countries like Uganda was possible at higher than world market prices.

The breakdown of cost components and distortions suggests that the price incentives reflected by nominal rates of protection (NRP) had the strongest impact on unit costs. In the normal case where both output and input rates of protection are positive, the NRP on output reduces the unit cost ratio, thereby increasing domestic competitiveness, whereas positive NRPs on inputs have the opposite effect. In the presence of a cascading tariff, output protection exceeds input protection so that the net effect on unit costs is negative. This was the case in fourteen industries, whereas in six industries the unit cost raising effect of input protection exceeded that of output protection. The latter case occurs usually in industries that export substantial proportions of their output. Some of those industries recuperated these penalties through export compensation, but on average the subsidy had only a weak impact on unit cost ratios. One notable exception is the non-metallic minerals industry for exports of cement.

Another distortion of great importance is the one of the price of capital goods. In this matter we rely entirely on the valuation supplied by firms in their interviews with the data-collecting consultants.

Nearly all industries suffered, in the mid-1980s, from positively distorted capital asset prices, normally a consequence of protective tariffs on imported capital goods. Their effect on unit costs ranged between minus 3 and plus 23 percent of output value.

The financial cost of capital, on the other hand, appears to have been subsidized, because the opportunity cost of capital was lower than the shadow interest rate. This follows from the fact that LIBOR was historically high in the early 1980s, reflecting the relatively high international rates of inflation, as well as the positive expected inflation differential in Kenya. The regulated market interest rate in Kenya provided, therefore an implicit subsidy. Its effect on unit costs ranges between zero and minus seven percent of output value, and it is obviously most important in capital-intensive industries, such as the cement industry and in sugar mills.

The smallest of all distortions is the one of labour cost, due to the assumption that most of the labour cost (i.e. for skilled labour) is undistorted, and due to the relatively small proportion of labour payments in total costs, which is usually less than 15%.

3.2 Changes since 1984 and Kenya's competitive position in 1997

In light of the policy changes that have occurred in the 13-year period since 1984, we come to the main objective of this study now and examine whether Kenyan firms and industries have become more competitive, and whether comparative advantage has been strengthened as a consequence of more liberal trade policies. The comparison between unit cost ratios of 1984 and 1997 is made here at the firm level, in order to minimize the influence of differences in product mix. In other words, we are comparing the 1984 and 1997 performances of the same firms. However, in 10 out of 42 firms the observations of the two years are not from the same enterprise, because either the firms of the earlier sample have gone out of business or chose not to collaborate in the study. In eight cases, they were replaced by another firm with a similar output mix, sometimes a newcomer in the market, and in two cases, no match could be found. Here we start with the unit cost ratio at domestic market prices (UCd) since this is the indicator that relies only on the cost and revenue data obtained from the firms, plus the average Kenyan lending rate, i.e. it does not rely on assumptions about equilibrium or shadow prices.

3.21 Domestic competitiveness

As explained earlier, the indicator UCd reflects the profitability of firms, but uses a criterion that is stronger than that of the rate of return. Since total costs include the opportunity cost of capital, which is taken to equal the average lending rate times the purchase value of capital stock plus depreciation, a firm may earn a positive rate of return and still show up as non-competitive if its rate of return is lower than the lending rate. Competitiveness in this sense, therefore, means that the price covers full cost, including the full opportunity cost of capital, and is a long-run criterion.

The comparison is carried out in table 3.2, which shows that the average unit cost ratio has increased by twelve percent, from 1.125 to 1.221. The number of firms with increases of this cost ratio (20) is the same as the number of unit cost declines, but the increases have been stronger than the declines. Table 3.2 also shows the main causes of the observed loss in domestic competitiveness.

Table 3: Unit cost ratio (UCd) and distortions in Kenyan firms: 1994 & 1997

Industry/Firm	Unit cost at market prices			Main distortions				
	Ucd			Protection		E-rate	Interest rate	
	1984	Change	1997	1984	1997	1997	1984	1997
Dairy A*	1.040	<	1.157	-0.003	-0.096	0.042	-0.002	0.146
Dairy B	n.a.		1.094	n.a.	-0.102	0.066	n.a.	0.089
Fruit can. A	1.079	>	1.071	0.099	0.054	0.040	-0.025	0.074
Fish pack. A	n.a.		1.145	n.a.	0.036	0.044	n.a.	0.090
Grain mill A	1.036	>	1.034	0.010	-0.028	0.037	-0.010	0.048
Bakery A	1.547	>	1.422	-0.071	-0.072	0.071	-0.058	0.229
Bakery B*	1.560	>	1.016	-0.095	-0.133	0.039	-0.061	0.057
Sugar/conf. A*	1.635	>	1.388	-0.298	-0.292	0.064	-0.085	0.204
Sugar/conf. B	1.157	>	0.914	0.006	-0.167	0.041	-0.023	0.075
Beverage A	0.934	<	1.312	0.017	-0.122	0.074	-0.031	0.199
Beverage B	1.036	>	0.963	0.100	-0.207	0.072	-0.006	0.054
Tobacco A	1.125	>	0.966	-0.088	-0.184	0.079	-0.024	0.109
Textiles A	1.078	<	1.569	-0.099	-0.226	0.099	-0.007	0.329
Textiles B	1.442	<	2.439	-0.259	-0.255	0.173	-0.042	0.800
Clothing A	1.165	>	1.161	0.025	-0.161	0.089	-0.021	0.158
Clothing B	1.140	>	1.026	0.104	-0.174	0.038	-0.013	0.056
Footwear A	0.698	<	1.054	-0.235	-0.178	0.074	-0.028	0.081
Wood prod. A	1.140	<	1.536	0.071	-0.125	0.102	-0.019	0.298
Paper A	1.591	>	1.238	-0.164	-0.063	0.071	-0.078	0.119
Paper B	1.697	<	2.113	0.248	-0.207	0.163	-0.059	0.680
Paper C*	0.888	<	1.008	0.121	-0.165	0.056	-0.010	0.115
Chem.:Paint A	0.813	<	1.035	-0.122	-0.196	0.048	-0.011	0.079
Chem.:Paint B*	1.149	>	1.032	-0.178	-0.206	0.060	-0.014	0.099
Chem.:Paint C	1.056	>	0.890	-0.345	-0.160	0.042	-0.014	0.042
Ind.chem. A	1.278	>	0.967	-0.154	-0.203	0.092	-0.036	0.219
Ind.chem. B	1.185	<	1.259	0.190	-0.065	0.067	-0.004	0.193
Ind.chem. C	1.044	<	1.379	-0.386	-0.218	0.085	-0.056	0.234
Pharmaceut. A	1.004	<	1.395	-0.124	-0.117	0.095	-0.027	0.269
Pharmaceut. B*	0.951	<	1.562	-0.049	-0.241	0.106	-0.022	0.161
Plastics A	0.609	<	1.134	-0.155	-0.103	0.054	-0.027	0.062
Rubber A	0.850	<	0.871	-0.205	-0.158	0.057	-0.032	0.090
Cement A	1.190	<	1.768	0.058	-0.161	0.147	-0.074	0.452
Cement B	1.346	<	1.603	-0.393	-0.163	0.131	-0.070	0.481
Basic metal A	1.373	<	1.940	0.133	-0.279	0.131	-0.026	0.517
Basic metal B	1.194	>	1.090	-0.242	-0.141	0.027	-0.032	0.065
Metal prod. A	0.980	>	0.884	-0.024	-0.185	0.044	-0.012	0.086
Metal prod. B*	1.263	>	1.084	0.028	-0.244	0.083	-0.016	0.293
Metal prod. C*	0.810	<	1.043	-0.050	-0.119	0.082	-0.018	0.131
Automotive A*	1.019	>	0.961	-0.099	-0.258	0.070	-0.022	0.235
Automotive B	0.924	<	1.302	-0.123	-0.259	0.107	-0.015	0.227
Automotive C	2.037	>	1.046	-0.536	-0.087	0.068	-0.076	0.096
Automotive D	1.170	>	0.965	-0.156	-0.109	0.035	-0.009	0.080
Average	1.125	<	1.221	-0.047	-0.133	0.075	-0.028	0.193

Note: In starred (*) industries the 1984 observation is taken from a different firm than that in 1997, because the latter was not included in the 1984 sample. The replacement was made only if the output mix was similar between the respondent firms in 1984 and 1997.

The most important loss of domestic competitiveness is caused by the increase of the cost of borrowing. While in 1984 the market lending-rate was three points below the shadow interest rate, in 1997 it was sixteen points above its shadow rate. This distortion in the price of credit has, on average, raised unit costs by about 22 percent across industries. The second most important factor is the re-appearance of currency misalignment. The estimated overvaluation of the Kenya shilling of 10% in 1997 adds on average 7.5% to the unit cost ratio. Tariff protection, on the other hand, has benefited the manufacturers, lowering their unit costs by about eight percent (distortion increasing from -4.7 to -13.3%). This effect comes as a surprise, given the general lowering of trade barriers during the period 1984 to 1997. The reason for this unexpected benefit is that, according to the data provided by firms, the tariff on imported inputs has declined more than the protective tariff on outputs. It is also evident that further cost increases have occurred in the costs of electricity, transport and communications discussed in the next sub-section, but we have no exact data of these costs of 1984 for comparison.

The firms with the lowest unit cost ratios were found in rubber, metal products and paints, which means, that under the existing tariff protection these industries offered the best opportunities for profitable production. The highest unit cost ratios were found in textiles, paper and cement. While in textiles this lack of competitiveness is largely a problem of pricing in the market, for the paper and cement industries it is caused mainly by high capital intensity. More in-depth analysis of these conclusions is provided in the industry profiles included in the main report.

3.22 Export competitiveness

The loss of competitiveness observed in the domestic market is even more substantial in international export markets. The indicator UCx, it will be remembered, shows the firms' ability to export, selling at international border prices, while their costs are distorted as in the previous indicator. This unit cost ratio compares actual costs with the border prices of Mombasa, rather than export prices to neighbour countries, which may be higher, especially if the countries are land-locked like Uganda. Therefore, it measures the capacity to export internationally rather than within the region.

The comparison over time is shown in the first three columns of table 3.3. The average unit cost ratio UCx has increased from 1.25 to 1.42, a decline of competitiveness of nearly 14 percent. For twenty-four firms the cost ratio has increased and for only sixteen it has declined. This means that it has become more difficult to export under present conditions than in the mid-eighties. It also means that with further declines in tariff protection, firms will find it more difficult to compete with imports in the domestic market.

Table 4: Export competitiveness (UCx) and main distortions in 42 firms in Kenya, 1984 and 1997.

Industry/Firm	Ucx			Distortions					
	1984	1997	Change in exp. Compet.	Input tariff		Energy cost 1997	Transp. cost 1997	Total (inputs)	
				1984	1997			1984	1997
Dairy A*	1.04	1.296	<	0.051	0.043	0.006	0.014	0.009	0.232
Dairy B	n.a.	1.222		n.a.	0.026	0.005	0.027	n.a.	0.215
Fruit can. A	1.078	1.071	>	0.098	0.054	0.012	0.01	0.068	0.182
Fish pack A	n.a.	1.145		n.a.	0.036	0.008	0.01	n.a.	0.178
Grain mill A	1.006	1.166	<	-0.02	0.024	0.003	0.013	0.003	0.193
Bakery A	1.704	1.532	>	0.087	0.038	0.006	0.006	0.207	0.351
Bakery B*	1.722	1.27	>	0.067	0.121	0.012	0.015	0.197	0.226
Sugar/conf.A*	2.45	1.735	>	0.518	0.055	0.006	0.012	0.674	0.341
Sugar/conf.B	1.284	1.114	>	0.133	0.034	0.004	0.008	0.133	0.152
Beverage A	0.916	1.611	<	-0.001	0.177	0.002	0.002	-0.01	0.451
Beverage B	1.036	1.204	<	0.099	0.034	0.008	0.007	0.134	0.173
Tobacco A	1.302	1.174	>	-0.001	0.024	0.004	0.006	0.051	0.238
Textiles A	1.404	1.795	<	0.227	0.06	0.039	0.02	0.266	0.522
Textiles B	1.896	2.759	<	0.195	0.065	0.013	0.006	0.366	1.044
Clothing A	1.184	1.395	<	0.044	0.072	0.025	0.011	0.096	0.348
Clothing B	1.629	1.261	>	0.592	0.062	0.009	0.008	0.602	0.163
Footwear A	0.993	1.341	<	0.061	0.109	0.013	0.009	0.05	0.291
Woodprod.A	1.137	1.73	<	0.068	0.07	0.027	0.021	0.122	0.612
Paper A	1.768	1.424	>	0.013	0.123	0.108	0.018	-0.015	0.35
Paper B	1.439	2.414	<	-0.01	0.095	0.08	0.012	0.192	0.942
Paper C*	0.888	1.219	<	0.121	0.046	0.007	0.012	0.151	0.223
Chem:PaintA	1.195	1.293	<	0.26	0.063	0.005	0.004	0.279	0.194
Chem:PaintB*	1.655	1.283	>	0.328	0.046	0.004	0.014	0.339	0.221
Chem:PaintC	1.55	1.113	>	0.149	0.063	0.003	0.003	0.155	0.15
Ind.chem.A	1.483	1.203	>	0.05	0.034	0.022	0.011	0.281	0.362
Ind.chem.B	1.057	1.382	<	0.062	0.058	0.001	0.025	0.066	0.331
Ind.chem.C	1.639	1.67	<	0.209	0.073	0.003	0.042	0.28	0.412
PharmaceutA	1.159	1.612	<	0.031	0.1	0.007	0.012	0.032	0.481
PharmaceutB*	1.053	1.86	<	0.053	0.057	0.003	0.002	0.033	0.327
Plastics A	0.81	1.285	<	0.045	0.048	0.011	0.012	0.155	0.169
Rubber A	1.2	1.089	>	0.145	0.06	0.012	0.015	0.157	0.225
Cement A	1.249	1.972	<	0.117	0.043	0.03	0.031	-0.353	0.862
Cement B	1.713	1.844	<	-0.026	0.078	0.072	0.011	-0.09	0.706
Basic met.A	1.525	2.263	<	0.286	0.044	0.008	0.008	0.321	0.783
Basic met.B	1.584	1.285	>	0.148	0.054	0.01	0.021	0.259	0.174
Metal prod.A	1.075	1.135	<	0.072	0.067	0.005	0.008	0.102	0.228
Metal prod.B*	1.323	1.139	>	0.088	0.062	0.011	0.022	0.126	0.452
Metal prod.C*	0.937	1.207	<	0.077	0.045	0.009	0.017	0.107	0.275
AutomotiveA*	1.165	1.25	<	0.047	0.031	0.003	0.007	0.047	0.339
AutomotiveB	1.154	1.601	<	0.108	0.041	0.008	0.002	0.127	0.4
AutomotiveC	2.669	1.2	>	0.096	0.068	0.005	0.006	0.045	0.236
AutomotiveD	1.679	1.14	>	0.353	0.067	0.006	0.015	0.309	0.182
Average	1.252	1.416	<	0.080	0.062	0.016	0.014	0.086	0.353

The main cost distortions are shown in columns 5 to 10 of table 3.2 and in columns 5 to 10 of table 3.3. The sum of all input distortions, i.e. the difference between UCx and UCs, which excludes the tariff on the output price, is shown in columns 9 and 10 of table 3.3. It has increased on average from 8.6% to 35.3 %, which represents the loss of domestic profitability at market prices. The cost impact of the tariff on inputs has declined from an average of 8% to 6.2%, which is a benefit from trade liberalization. The main unit cost increases are caused by the interest rate (distortion impact going from -2.8% to 19.3%) and the misalignment of the Kenya shilling, which accounts for 7.5% (from zero in 1984). Table 3.3 also shows in columns 7 and 8 the unit-cost impact of distortions in energy and transport & communications costs, which account for 1.6% and 1.4%, respectively. Their importance as a proportion of output value is surprisingly low, although their importance expressed by firm officials in interviews and on the questionnaire is much more substantial. The highest energy cost distortion is observed in the paper industry, where electricity failure and taxes on fuel amount to over ten percent of output value. Even more constraining are the extra costs reported for transport of inputs and for communications, where firms cope with the deteriorating railway, roads and telephone system by increased costs that are likely to reflect less than the total cost including the cost of frustration of the managers and agents directly involved. Since we do not have reliable estimates of these costs in 1984, we could not quantify them for comparison with 1997, but it is clear from the questionnaires that these cost categories are much higher now than in the mid-eighties.

The industries that appear to be most export-competitive in 1997 are fruit canning, paints (firm C) and confectionery, and the ones least competitive seem to be in the textile, paper, cement and chemicals industries. This observation raises the question of how the message of our indicator can be reconciled with the actual export performance. While fruit canning is actually an export industry, paints and confectionery are mainly produced for the domestic market, with only limited exports. On the other hand, cement and paper are exported to neighbour countries by Kenyan firms. This apparent contradiction can be explained by two factors. First, the neighbour countries import at prices that are substantially higher than the international border price (cif Mombasa), due to transport costs. Second, the unit cost ratio is an indicator biased against capital-intensive industries, as we have shown earlier, and both paper and cement have highly capital-intensive production processes.

3.23 Comparative advantage and its sources

The unit cost ratio UCs, in which all costs and revenues are based on shadow prices, informs us about comparative advantage, which is understood as competitiveness in real terms. Essentially, it reflects efficiency and factor abundance (cheapness). It is important to remember that since the indicator UCs compares manufacturing costs with international free-trade prices, the criterion $UCs \leq 1$ is a very demanding criterion. It shows not only which industries, under distortion-less conditions would be able to export, but also which of all industries is relatively strongest in this respect. In the best of all economic environments, only about half of all activities can be expected to have comparative advantage.

Table 5: Comparative advantage/disadvantage (UCs) of 42 firms in Kenya, 1984 and 1997

Industry and Firm	UCs		Cost components						Change** in compar. advantage
			Tradable inputs		Labour		Capital		
	1984	1997	1984	1997	1984	1997	1984	1997	
Dairy A*	1.031	1.063	0.801	0.837	0.103	0.027	0.025	0.145	<
Dairy B	n.a.	1.007	n.a.	0.504	n.a.	0.096	n.a.	0.115	
Fruit can. A	1.01	0.889	0.573	0.634	0.125	0.116	0.238	0.104	>
Fish pack A	n.a.	0.967	n.a.	0.659	n.a.	0.042	n.a.	0.12	
Grain mill A	1.004	0.973	0.856	0.757	0.027	0.02	0.098	0.061	>
Bakery A	1.497	1.181	0.746	0.751	0.106	0.095	0.569	0.237	>
Bakery B*	1.525	1.044	0.66	0.841	0.06	0.046	0.601	0.081	>
Sugar/conf.A*	1.777	1.393	0.472	1.031	0.249	0.07	0.812	0.28	>
Sugar/conf.B	1.151	0.963	0.509	0.664	0.13	0.19	0.212	0.099	>
Beverage A	0.925	1.16	0.454	0.801	0.147	0.096	0.255	0.218	<
Beverage B	0.902	1.031	0.566	0.415	0.091	0.118	0.067	0.093	<
Tobacco A	1.251	0.936	0.74	0.307	0.165	0.216	0.24	0.138	>
Textiles A	1.139	1.273	0.627	0.649	0.201	0.173	0.061	0.453	<
Textiles B	1.56	1.715	0.7	0.87	0.199	0.069	0.427	0.765	<
Clothing A	1.089	1.047	0.56	0.422	0.15	0.219	0.209	0.166	<
Clothing B	1.027	1.098	0.744	0.842	0.113	0.083	0.117	0.155	<
Footwear A	0.943	1.05	0.254	0.53	0.179	0.233	0.258	0.098	<
Woodprod.A	1.015	1.119	0.569	0.61	0.085	0.126	0.188	0.351	<
Paper A	1.783	1.074	0.431	0.644	0.207	0.159	0.702	0.138	>
Paper B	1.248	1.472	0.467	0.626	0.062	0.076	0.615	0.681	<
Paper C*	0.738	0.996	0.464	0.604	0.103	0.128	0.103	0.163	<
Chem:PaintA	0.916	1.1	0.623	0.77	0.095	0.09	0.106	0.094	<
Chem:PaintB*	1.316	1.062	0.812	0.628	0.151	0.119	0.128	0.113	>
Chem:PaintC	1.394	0.962	0.609	0.655	0.184	0.104	0.125	0.049	>
Ind.chem.A	1.202	0.841	0.232	0.195	0.133	0.16	0.464	0.354	>
Ind.chem.B	0.992	1.051	0.799	0.645	0.068	0.114	0.041	0.197	<
Ind.chem.C	1.359	1.258	0.655	0.741	0.075	0.14	0.522	0.286	>
PharmaceutA	1.127	1.131	0.728	0.573	0.09	0.193	0.243	0.256	<
PharmaceuB*	1.02	1.533	0.343	0.7	0.244	0.149	0.2	0.178	<
Plastics A	0.655	1.116	0.192	0.691	0.103	0.151	0.28	0.161	<
Rubber A	1.043	0.064	0.508	0.47	0.107	0.096	0.322	0.116	>
Cement A	1.602	1.11	0.653	0.368	0.108	0.116	0.718	0.52	>
Cement B	1.802	1.138	0.77	0.407	0.004	0.148	0.743	0.558	>
Basic met.A	1.204	1.48	0.821	0.829	0.056	0.065	0.257	0.563	>
Basic met.B	1.325	1.111	0.888	0.995	0.024	0.024	0.332	0.075	>
Metal prod.A	0.973	0.907	0.695	0.65	0.085	0.083	0.112	0.114	>
Metal prod.B*	1.197	0.938	0.834	0.485	0.095	0.076	0.155	0.343	>
Metal prod.C*	0.83	0.932	0.364	0.309	0.165	0.12	0.175	0.166	<
AutomotiveA*	1.118	0.911	0.626	0.478	0.148	0.116	0.206	0.254	>
AutomotiveB	1.027	1.201	0.682	0.432	0.073	0.15	0.14	0.214	<
AutomotiveC	2.624	0.964	1.693	0.451	0.097	0.224	0.636	0.102	>
AutomotiveD	1.37	0.958	1.14	0.76	0.084	0.032	0.116	0.087	>
Average	1.166	1.063	0.673	0.591	0.086	0.102	0.278	0.222	>

Notes: Starred (*) firms as in preceding tables. **Increase (>) and decrease (<) in comp. advantage.

The indicator of comparative advantage is shown for 1984 and 1997 in columns 2 and 3 of table 3.4, with three of the four cost components (tradable inputs, labour and capital) in columns 4 to 9. The fourth component, non-tradable inputs, can be obtained by deduction of the three others from UCs. Taking the average UCs of all firms in both years, it has declined from 1.67 to 1.06, or by about ten percent. This means that the firms of our sample have, on average, increased their comparative advantage. This finding is of great importance, as it is the expected outcome under trade liberalization. For Kenya, it means that in spite of increasing disincentives to manufacturers, and declining competitiveness at market prices, resources have flown towards activities with comparative advantage. The number of firms having gained comparative advantage (or diminished their disadvantage) is 22, compared with 18 firms experiencing the opposite development is not very different, but on average, the gains exceed the losses of comparative advantage by a significant margin.

As to the cost components, which can be seen as the sources of comparative advantage, one must remember that without a cost function analysis we cannot derive definite conclusions. Only changes in the average can be observed. The most notable change is the reduction of the share of capital costs by 24%, from 27.8 to 22.2% of the output value. It is important to stress that this reduction is not due to the shadow interest rate, which was nearly the same in 1997 (14%) as in 1984 (14.4%). Rather, it reflects an improvement in the utilisation rate of capital, which has been reported by the responding firms. The change in the average share of tradable inputs from 67.3 to 59.1% is evidence of rationalization in the use of inputs. The share of non-tradables, however, has increased from 12.9 to 14.9%, reflecting increases in the costs of transport and communications. Labour costs have increased from 8.6 to 10.2%.

The industries with greatest comparative advantage seem to be rubber products, fruit canning, tobacco products and some chemicals, whereas textiles, paper and pharmaceuticals seem to have least comparative advantage. This conclusion also holds some surprises because among the leaders in comparative advantage at least one is not an important exporter, whereas within the laggards we find at least one exporter. In other words, as long as industries function in price-distorted environments, they may find it more profitable to cater to the domestic market than to export in spite of comparative advantage, and firms with a comparative disadvantage may be able to export under distorted market prices. The explanations of this phenomenon are similar to those given under export competitiveness.

As to the sources of comparative advantage from a more general point of view, we saw in the analysis of 1984 that there was a bias against capital-intensive industries. Firms were more likely to be non-competitive ($UCs > 1$), when their capital cost was particularly high. In the 1997 sample of firms, the bias is less significant, due to the smaller sample size. The highest correlation ($R^2 = 0.44$) exists again between UCs and capital, which has a negative intercept, implying that the use of capital is still a source of disadvantage. The firms with lowest unit costs tend to use the least capital. The trend lines of all four factors are shown in figure 2 and their equations are as follows:

VITs = 0.106 + 0.475 CUs	with $R^2 = 0.232$
VINs = 0.183 - 0.048 CUs	with $R^2 = 0.006$
LCs = 0.154 - 0.034 CUs	with $R^2 = 0.014$
KCs = -0.443 + 0.607 UCs	with $R^2 = 0.441$

where VITs, VINs, LCs and KCs are the unit cost ratios of traded and non-traded inputs, total labour

and total capital, respectively. While in 1984 the bias could be attributed to low capacity utilisation, in 1997 it is attributable to the high price of capital, since capacity utilization rates were generally higher. The analysis also shows that the relatively strongest bias is in favour of traded inputs. In other words, firms may be able to achieve lower unit costs by using more transformed tradable inputs, a phenomenon well known as specialization in more industrialized countries.

3.3 Industry-level analysis and comparisons with industries in Uganda

The aggregation of data from 42 firms to 16 industries, defined at the four-digit level of the International Standard Industrial Classification (ISIC), makes the presentation of results easier and hides firm-specific details in the interest of confidentiality, but it also hides particular insights one gets from working at the firm level. The aggregated data do not permit to infer to what extent firm-specific factors influence the industries' unit costs. When firm-level data are being used, one can easily find industries in which one firm does extremely well and another extremely badly. It is then interesting to investigate the reasons for different performance, separating market and policy-induced factors from firm-specific ones, such as managerial efficiency or inefficiency. Since in the present context we focus on policy-induced effects rather than intra-firm characteristics, it is useful to move to the aggregated results, although there are some problems of comparability between the samples of Kenyan and Ugandan industries. The sample of 21 Ugandan firms is aggregated to 12 industries, 11 of which have a counterpart in Kenya. In one industry, animal feed, we could not obtain any data from a Kenyan firm. For details about the Ugandan industries and policy environment, the reader is referred to the Uganda component of the present study (Siggel, Ssemogerere, 1999).

3.31 Competitiveness and comparative advantage

Starting again with the indicator of domestic competitiveness (UCd), i.e. under the full influence of distortions, the comparison with Uganda leads us to a surprise. The Ugandan firms in our sample are, on average, more profitable and in that sense more competitive than the Kenyan firms. This conclusion is reached not only by use of the unit cost ratio, but also counter-checked against the gross rate of return as computed from the cost and revenue data. The difference is in the order of 13% (based on the weighted average of UCd as obtained from aggregation and shown in the bottom line of table 3.5), which is substantial. Given the fears, frequently expressed by Ugandan industry officials, of the Kenyan industrial superiority, the observation comes as a surprise.

Table 6: Unit cost ratios in Kenyan and Ugandan industries, 1997

Industry	Unit cost ratios					
	UCd		UCx		Ucs	
	Kenya	Uganda	Kenya	Uganda	Kenya	Uganda
Dairy products	1.096	1.172	1.224	1.359	1.008	1.080
Fruit/fish proc.	1.080	0.996	1.080	0.996	0.886	0.878
Grain mills	1.034	1.090	1.166	1.277	0.973	1.117
Bakery products	1.287	1.066	1.454	1.386	1.132	1.190
Sugar/confect.	1.160	n.a.	1.437	n.a.	1.170	n.a.
Bever/Tobacco	0.990	n.a.	1.215	n.a.	0.982	n.a.
Text./clothing	1.408	2.365	1.660	2.991	1.199	2.099
Footwear	1.054	0.885	1.341	1.132	1.050	0.967
Wood/paper	1.738	1.500	2.005	1.334	1.276	1.152
Chem: paint	0.992	1.078	1.236	1.324	1.039	1.143
Industr.chem.	1.178	n.a.	1.347	n.a.	0.998	n.a.
Pharmaceutical	1.538	n.a.	1.824	n.a.	1.458	n.a.
Plastic/rubber	0.879	n.a.	1.095	n.a.	0.828	n.a.
Cement	1.721	0.961	1.936	1.539	1.139	1.257
Metal prod.	1.099	1.099	1.326	1.418	1.063	1.157
Automotive	0.985	0.728	1.171	0.947	0.963	0.839
Average	1.221	1.089	1.416	1.332	1.063	1.115

Table 3.5 shows in columns 2 and 3 that, out of 11 industries with comparable but not fully equal product mix, six Ugandan industries have a lower UCd than their Kenyan competitors. The reverse is true in only four Kenyan industries, while one industry is on equal footing. One could explain this finding by possibly higher protection in Uganda, but the opposite is the case. As we shall see in the discussion of distortions, the total impact of tariff protection is lower, and that of the exchange rate higher, than in Kenya. Therefore, the higher Kenyan unit cost ratio must be a consequence of additional or higher cost factors.

With regard to export competitiveness, the situation is similar, but less pronounced: Kenyan industries appear to be less competitive (average UCx =1.416) than Ugandan industries (UCx=1.332). Since UCx differs from UCd only by the output tariff and, in Uganda's case, by the border price differential, the answer is clear: the combined protective effect of the output tariff and the border price differential is smaller than the unit cost differential. In other words, if the border price differential was zero and the output tariff equal in both countries, the unit cost differential would be even greater and to the disadvantage of Kenya.

Columns 6 and 7 show, that in terms of comparative advantage, based on the unit cost ratio at shadow prices, the situation is reversed: Kenyan industries are, on average, more competitive in real terms than their Ugandan counterparts. The conclusion also holds for seven out of eleven individual industries. On a one-by-one basis, the reversal (from UCd and UCx) occurs only in two industries, bakeries and cement. Their distortions are stronger penalties than those in Uganda. In all other industries the unit

cost superiority or inferiority runs in the same direction for all three indicators. Given the importance of the distortions for policy purposes, let us now see how they differ between the two countries.

3.32 Distortion analysis

The distortions with the greatest impact on unit costs are, in the order of magnitude, the interest rate distortion, tariff protection and the exchange rate distortion. Table 3.6 shows them at the industry level in both countries. The total effect of the tariff regime, including output and input tariffs, is shown in columns 1 and 2. The average impact on unit costs is 13.8% in Kenya 4% in Uganda, both being negative, since the protective effect on output is stronger than that of the tariff on imported inputs, due to the cascading tariff. The currency misalignment, which is estimated to be 10% in Kenya and 20% in Uganda, has an average unit-cost impact of 7.5% in Kenya and of 9.5% in Uganda. The interest rate distortion is much more important in Kenya, due to the high lending rate of 30%, while in Uganda it is only 21.5%. In addition, the shadow rate used in Kenya (14%) is lower than that used in Uganda (16%), which can be seen as a reflection of a more developed financial sector.

Table 7: Main distortions in unit costs in Kenyan and Ugandan industries, 1997

Industry	Main distortions					
	Tariff protection		Exchange rate		Interest rate	
	Kenya	Uganda	Kenya	Uganda	Kenya	Uganda
Dairy prod.	-0.101	-0.004	0.065	0.111	0.091	0.043
Fruit/fish pac.	0.043	0.053	0.04	0.047	0.076	0.014
Grain mill	-0.028	-0.001	0.037	0.081	0.048	0.028
Bakery prod.	-0.099	-0.168	0.062	0.088	0.178	0.040
Sug./confect.	-0.23	n.a.	0.049	n.a.	0.158	n.a.
Bev./Tobacco	-0.185	n.a.	0.077	n.a.	0.098	n.a.
Text./clothing	-0.184	-0.267	0.097	0.398	0.272	0.319
Footwear	-0.178	-0.131	0.074	0.091	0.081	0.015
Wood/paper	-0.19	-0.007	0.126	0.102	0.456	0.029
Chem:paint	-0.192	-0.041	0.054	0.071	0.081	0.040
Ind.chem.	-0.112	n.a.	0.075	n.a.	0.202	n.a.
Pharmaceut.	-0.207	n.a.	0.106	n.a.	0.176	n.a.
Plast./rubber	-0.121	n.a.	0.06	n.a.	0.089	n.a.
Cement	-0.164	-0.102	0.142	0.153	0.481	0.167
Metal prod.	-0.149	-0.052	0.045	0.125	0.114	0.052
Automotive	-0.115	-0.074	0.041	0.083	0.094	0.035
Average	-0.133	-0.040	0.075	0.095	0.193	0.056

The average interest rate distortion, therefore, adds 19.3% to unit costs in Kenya, but only 5.6% in Uganda. The other distortions, in labour costs, capital goods prices and non-tradables, are of similar magnitudes and small in both countries. The transport cost distortion on input costs is the only one that is significantly bigger in Uganda, due to its landlocked geography and major problems in the transport

link between Mombasa and the Ugandan border. The communications cost distortion, on the other hand, is smaller in Uganda, since its telephone system is reported to be more reliable. For the energy distortion, the computed rate appears to be higher in Uganda, but this may be the result of evaluating it differently. While in Kenya it is based on the firms' own evaluation of the cost differential between actual and "normal" operation, it is based on the finding of another study (UMA, 1996) in Uganda. In both countries, firms have regularly reported electricity blackouts, but it is not clear whether they are more or less important, cost-wise, in either country.

In conclusion of the comparison between Kenyan and Ugandan industries, it appears that Kenya has an edge over Ugandan manufacturers in terms of comparative advantage, but this edge is cancelled out by the sum of all distortions. At present prices and rates of protection, Ugandan firms are more profitable, and thereby have a reserve to use when competition heats up under further regional integration. On the other hand, the landlocked position of Uganda, which raises most of its prices above those in Kenya and provides some natural protection to Uganda's industries, makes it also more difficult to envisage exports towards Kenya by Ugandan industries, even if some of them may have a slight comparative advantage vis-à-vis Kenya.

3.4 Sensitivity analysis for the indicators of the Kenyan sample of firms

The sensitivity of our findings to changes in some of the key variables is being explored by simulating the indicators. We examine how the indicators are affected by different assumptions about the shadow prices. This approach attempts to overcome the uncertainty about finding and using the most accurate estimates of true scarcity prices. It leads us to determine maxima and minima of UCs that determine the ranges of greater certainty and possible error in our evaluation. Obviously, the values of Ucd and UCx are not affected by these simulations, and only the findings about comparative advantage are being modified.

As we have shown in the preceding section, the price distortion with the strongest impact on unit costs is that of the interest rate. This follows from our assumption of international mobility of capital and the choice of a shadow interest rate that equals the international rate in the form of LIBOR, adjusted only for differential inflation. This assumption may be and has been criticized as being unrealistic.⁸ One can argue that the scarcity price of capital in a country like Uganda must include certain real costs that are due to the underdeveloped state of the financial sector and to low savings. Unfortunately we do not possess reliable data on these factors. On the other hand, we also see the average lending rate as a rate that includes elements, which we would clearly label as distortions, such as the impact of insufficient enforcement of banking regulations. The sensitivity of the unit cost ratios to variations in the shadow interest rate (rs) is therefore examined by calculating a lower and an upper bound of it. An alternative rate based on the interest rate parity condition can be computed as LIBOR plus the expected rate of currency depreciation. Taking the actual exchange rate of t+1, one obtains as expected rate of depreciation in Kenya's case 3%, implying a shadow interest rate of 9%. Under purchasing power parity this rate should be the same as the one based on the inflation differential. The fact that it is lower suggests that investors may have expected some appreciation of the Kenya shilling in real terms. This is unlikely, however, given the weakness of foreign capital inflows. If one takes the total rate of

⁸ Comments by Mr. Tumusiime Mutebile, Secretary of the Treasury, Government of Uganda, October 1999.

overvaluation as expected rate of depreciation (i.e. 10%) one obtains an interest rate of 16.6%, which we consider as upper bound, while the rate of 9% is taken as lower bound, and the median rate of 14% is used in the computations as most likely value.

As to the misalignment of the exchange rate, we had argued earlier that by 1997 the Kenya shilling had appreciated in real terms and we estimated the rate of overvaluation as 10%. For simulation purposes we are using a lower bound of zero and an upper bound of 20%. The latter rate is a conservative estimate, based on the fact that the shilling had depreciated very strongly in 1993, which one could consider as a year of equilibrium (with possibly some degree of overshooting) and that the real exchange rate vis-à-vis the US\$ appreciated by at least 20% between 1993 and 1997.

Based on these estimates of upper and lower bounds of the shadow interest rate (rs) and exchange rate overvaluation (Reo), the following table shows the unit cost ratios at shadow prices of the total sample of firms (weighted average).

Table 8: Comparative advantage (UCs) under varying assumptions about the shadow interest rate (rs) and currency overvaluation (Reo).

	Shadow interest rate, rs (in %)		
Reo (in %)	9.0	14.0	16.6
0	1.044	1.111	1.145
10	1.003	1.063	1.095
20	0.97	1.025	1.054

The analysis suggests that for our sample of industries, the unit cost ratio at shadow prices may vary between a minimum of 0.97 and a maximum of 1.15, depending on what values of rs and Reo we assume to be most realistic. Since the interest rate and the exchange rate are related, and since the maximum of one is not compatible with the minimum of the other, the median value of each appears to be the safest estimate. A unit cost ratio of 1.06, taken as sector average, means comparative disadvantage vis-à-vis the rest of the world, but a slight comparative advantage vis-à-vis Ugandan manufacturing, where the comparable rate was computed as 1.12. We have concluded in the detailed industry analysis only presented in the full-length report of the project (Siggel, Ikiara, Nganda, 1999), that there are several industries in which Ugandan firms may become suppliers of Kenyan demand or, at least, Kenyan exporters may lose their competitive advantage relative to Ugandan producers under further regional integration and adjustments by the firms.

4 Conclusions and policy recommendations

The analysis reveals that in the Kenyan manufacturing sector only very few industries had comparative advantage and were internationally competitive in the mid-1980s. This situation has not improved, but seems to have deteriorated, in spite of over ten years of structural adjustment and trade policy changes. If this was only true for profitability and as a consequence of decreased protection, then one could consider this as normal for such a transition period. But since it is not even clear that actual protection, as measured by comparison of domestic and international prices, has declined as one would expect, the declining competitiveness must be attributed to increased costs, and we have substantial evidence of

this. Competitiveness in the protected domestic market is also weakened due to these cost increases. At present, using the tariff instead of the implicit NRP in about half of the cases, it appears that on average, protection is not reduced in comparison to the mid-1980s.

Although price distortions may have diminished somewhat, new kinds of cost distortions have been added. Generally speaking, we may call them distortions of public service deficiencies, such as the extra cost resulting from the deterioration of infrastructure, especially transport and communication, but also energy and water supply. The biggest additional cost, however is caused by the inefficiency of the financial sector, which makes borrowing for investment prohibitive. Finally, the exchange rate also contributes to competitive weakness by showing sign of overvaluation.

Judging from the responses of the participating firms and from the quantitative analysis of their data, we conclude that in order to accelerate industrialization, the Government of Kenya must make fundamental policy changes. It is not sufficient to plunge a still adolescent industrial sector into partially or even fully liberated international trade, hoping that the invisible hand will do the rest. What is needed is an industrial strategy in which the government plays an active role in creating the enabling environment. It would appear that in Kenya the environment for business has been rather disabled than enabled in recent years, in spite of the existence of very well-intentioned policy documents. If the present downward trend is not drastically reversed, the goal of industrial maturity in the year 2020 is more like wishful thinking.

4.1 Policy recommendations

(1) Given the national goal of transforming Kenya into a Newly Industrialized Country (NIC) by the year 2020, and given the environment of globalization and liberalized trade, it is clear that increased competitiveness must become a major objective and challenge for all industries. This is true in international as well as in regional markets.

(2) The study shows that some of the macroeconomic policies and variables are of crucial importance for the attainment of competitiveness by industries. In particular, low cost of borrowing, a stable and well aligned exchange rate, as well as a sound infrastructure in transport, communications, energy and water supply are a pre-condition for industrial growth.

(3) We recognize the benefits of liberalized trade, but we also observe that opening up of the economy is not sufficient to achieve the goals of increased competitiveness and industrial growth. What is needed is a cautious progression of trade liberalization combined with an industrial strategy that recognizes the importance of the pace at which industries can adjust to the changing environment.

(4) The study clearly shows that the enactment of liberal trade policy is not sufficient, but must be accompanied by effective enforcement of the trade regime. The recent changes in the trade regime seem to be sufficient to create a level playing field for competing firms, but only if the respective laws are effectively enforced. This pertains particularly to the customs administration. We observe that several sectors have been adversely affected by the failure to enforce the existing trade policies.

- (5) The recent trend of declining interest rates is a step in the right direction, but it needs to be further pursued by sound fiscal policies, in order to bring the cost of borrowing to a level that permits industries to make new investments for increased competitiveness.
- (6) We also recognize that the recent depreciation of the currency has reduced the observed misalignment and often-heard complaint of over-valuation that hurts competitors in international markets. A cautious approach to currency depreciation is, however, necessary to prevent new inflationary pressure, which would cancel the gains in competitiveness.
- (7) Transport and communications are two areas in which industries suffer from substantial extra costs that inhibit their competitive strength. We recognize that some steps are being taken to reduce these problems, but it is urgent to accelerate the pace of such renewal. In addition to improvements in the road infrastructure it seems urgent to further the pace toward privatization of the railways in order to make them again fully functional.
- (8) There seems to be an urgent need for more stringent quality controls and the enforcement of standards, in order to assure that Kenyan producers can compete in export markets. This is particularly important in the food industries and especially urgent in fish processing, where the ban of exports from East Africa to the European Union has badly hurt the sector.
- (9) Some sectors require political support as well as regional cooperation in order to allow industries to exploit their natural comparative advantage.
- (10) Regional integration tends to be successful when intra-industry trade flourishes. The study provided us with some preliminary evidence of superior competitiveness in some fast growing industries in Uganda. This may be seen by some Kenyan producers as a threat to their traditional export perspectives. But it can also be seen as an opportunity to develop intra-industry trade between the countries of the East Africa region, which would benefit their economic growth.

References

- Cockburn, J., E. Siggel (1995), “Une méthodologie d’analyse de la compétitivité”, fiche technique #6, Réseau sur les politiques industrielles, CODESRIA, Dakar.
- Cockburn, J., E. Siggel, M. Coulibaly, S.Vézina (1999), “Measuring Competitiveness and its Sources: The Case of Mali’s Manufacturing Sector”, Canadian Journal of Development Studies, vol. XX, No.3.
- Dlamini, A. T., 1987, “Management of foreign exchange reserves through quantitative controls: the Kenyan experience”, University of Nairobi, MBA research paper.
- Dornbusch, R., S. Fisher, P.A. Samuelson (1977), “Comparative Advantage, Trade and Payments in a Ricardian Model with a Continuum of Goods”, The American Economic Review, December.
- Elbadawi, I.A., (1998), “Real Exchange Rate Policy and Non-Traditional Exports in Developing Countries”, AERC, (mimeo).
- IMF, International Financial Statistics, (monthly).
- International Competitiveness, (1996), a symposium, Oxford Review of Economic Policy, special issue.
- Jansen, D.J., Selhorst, (1985), “Preliminary Protection and Efficiency Indicators for the Kenyan Manufacturing Sector”, Ministry of Planning and National Development, Ministry of Commerce and Industry of Kenya, November.
- KEDS (1993), “Kenya Export Policy Baseline Study”, Kenya Export Development Support Project, Development Alternatives Inc. and The Services Group.
- KEDS (1994a and b), “Export Competitiveness Study, Volume I: Comparative Analysis and Vol. II: Policy Measures to improve export competitiveness”, The Services Group. Inc.
- Keyfitz and Wanjala, 1991, “Optimal tariff reform for Kenya”, Technical paper 91B05, Nairobi: Ministry of Planning and National Development.
- McCormick, D. 1998, “Policies Affecting Kenyan Industrialization: 1964-1994, in Ng’ethe, N. and Owino, W. (eds): From sessional paper No.10 to Structural Adjustment: Towards Indigenizing the Policy Debate”, Institute of Policy Analysis and Research, 1998, Nairobi.
- Mwega, F.M. and N.S. Ndung’u, 1997, “Macroeconomic policies and exchange rate management in African economies: the Kenyan case”, Paper presented at the Commonwealth Secretariat Training on Economic Reform and Management for Africa Region, June 2-20 1997, Nairobi, Kenya.
- Mwega, F.M., Ndung’u, N.S., (1998), “Macroeconomic Policies and Exchange Rate Management in African Economies”, AERC and Economics Department, University of Nairobi.

Ndung'u, N. S., 1997, "Active exchange rate management: The case of Botswana and Kenya: A contrasting example of managing booms with a stabilising instrument", Paper presented at the Commonwealth Secretariat Training on Economic Reform and Management for Africa Region, June 2-20, 1997, Nairobi, Kenya.

Republic of Kenya, 1986, "Sessional paper No.1 of 1986", Government Printers, Nairobi.

Republic of Kenya, 1996: "Sessional paper No.2 of 1996 on Industrial Transformation to the Year 2000", Government Printers, Nairobi.

Republic of Kenya, 1996, 1997 and 1999, Economic Survey, Government Printers, Nairobi.

RPED, 1996: "Regional Programme on Enterprise Development: Report on Round 3 of the Kenya Survey", Department of Economics, Universities of Nairobi/Gotenborg, (Mimeo), Gotenberg, Nairobi. (Earlier volumes: RPED 1993, 1994 and 1995).

Sharpley, J and Lewis, S, (1988): "Kenya's Industrialization, 1964-84". IDS Discussion paper No.242, Institute of Development Studies, Sussex.

Siggel, Eckhard, (1991), "Recent Industrial Growth and Development in Kenya: Constraints and Prospects for the Future", in: Dasgupta, Issue in Contemporary Economics, Proceedings of the 9th World Congress, International Economic Association, Macmillan.

Siggel, Eckhard, (1993), "International Competitiveness, Comparative Advantage and Incentives: Interrelationships and Measurements", Discussion Paper Series, DP 9314, Concordia University, Department of Economics.

Siggel, Eckhard, (1997), "Les concepts, mesures et sources de la competitivite internationale: une revue de la literature", Réseau de politiques industrielles, Dakar, (mimeo).

Siggel, Eckhard, (1999), "India's Trade Policy Reforms and Industry Competitiveness in the 1980s", International Economic Association, 12th World Congress (Buenos Aires), proceedings.

Siggel, E., J. Cockburn, (1995), "International Competitiveness and its Sources: A Method of Development Policy Analysis", Discussion Paper DP 9517, Concordia University, Department of Economics.

Siggel, E., G. Ikiara, B. Nganda, (1999), "Industry Competitiveness, Trade Prospects and Growth in Kenya and Uganda: The Kenya Component and Comparisons with Uganda", (mimeo).

Swamy, G. 1994: "Kenya: Patchy, Intermittent Commitment" in Ishrat Husain and Rashid Faruquee (eds); Adjustment in Africa: Lessons from Country Case Studies, The World Bank, Washington, D.C.

Tostensen, A, 1991: “Between Shamba and Factory: Industrial Labour Migration” in Coughlin, P and Ikiara, G.K. (eds): Kenya’s Industrialization Dilemma. Heinemann, Kenya, Nairobi.

Wignaraja, G. and G. K. Ikiara, 1996, “Adjustment, technological capabilities and enterprise dynamics in Kenya”, (mimeo), Nairobi: report prepared for the Commonwealth Secretariat.